

Judson (A. B.)

THE HISTORY OF THREE CASES
OF
HIP-DISEASE IN THE THIRD STAGE.

BY A. B. JUDSON, M.D.,

Orthopedic Surgeon to the Out-Patient Department of the New York Hospital.



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# THE HISTORY OF THREE CASES OF HIP-DISEASE IN THE THIRD STAGE.

BY A. B. JUDSON, M.D.,

*Orthopedic Surgeon to the Out-Patient Department of the New York Hospital.*



CASE I.—Was of a boy, æt. six years, who presented an enormous abscess and all the usual symptoms of the third stage of hip-disease, which was of nineteen months' duration. The abscess had advanced so far that a spontaneous opening occurred on the same day in which the patient was first examined, and before treatment could be instituted. The child's general condition was bad. The limb was strongly flexed and adducted. The slightest attempts at motion elicited screams of pain. Exsection had already been urged by a medical attendant.

Mechanical treatment was begun the sixth day after the patient was first examined. The apparatus used was the long hip-splint, first described by Dr. C. Fayette Taylor in 1867. Its essential parts are a pelvic band carrying two perineal straps which are applied to the ischiatic and pubic regions of the pelvis, for counter-extension, and a strong upright containing a sliding bar moved by a rack and pinion and having a rectangular piece extending under the sole of the foot. Adhesive plasters are attached to the limb and buckled to the foot-piece of the splint to ensure extension. A piece of webbing was buckled round the splint and the lower part of the thigh, although it is believed that the fixation power of the apparatus is increased by the substitution for this webbing, of a U-shaped piece of steel which retains the femur more nearly in a line parallel with the upright of the splint. This apparatus was used with a two-fold object; first, to afford a reasonable degree of immobility to the joint, and, secondly, to facilitate locomotion by acting as an ischiatic crutch. With the addition of an elevated shoe to the foot of the unaffected limb, the patient was about the house daily from almost the very beginning of treatment, and the affected limb was as free from concussion in locomotion as if it had been a naturally pendent member, calling to mind the words of the entertaining writer, M. Hennequin: "Mais le corps humain peut il conserver pendant des mois entiers l'attitude verticale, touchant le sol par un pied seulement? Evidemment non, cest au-dessus de ses forces. L'avenir nous réserve sans doute de grandes surprises, et ce qui est impossible aujourd'hui deviendra peut être facile demain." (Archives générales de médecine, Jan. 1869, p. 64.)



The first application of a splint to a patient in the third stage of hip-disease is a matter of some difficulty. The apparatus is constructed as if it were to be applied to a symmetrical figure; hence when first brought near the patient the symmetry of the splint throws the deformity into such marked relief as to make it seem impossible to use the apparatus. The free ends of the pelvic band may extend obliquely upwards over the thorax in front and behind, on account of the extreme adduction. The perineal straps may be far from occupying the places which they would fill if the patient's body were symmetrical, indeed, it may be impossible at first to use them on the affected side. But with care and gentleness the instrument can be so arranged as to permit of a slight amount of extension and counter-extension. This is attended inevitably by a partial but most grateful arrest of motion and is followed

immediately by a gradual reduction of the deformity. In a few days the symmetry of the patient's figure will be so far restored that the splint is properly and comfortably worn. The pelvic band can then be lowered to its place below the level of the anterior superior spine of the ilium, the perineal straps will adapt themselves to the ischiatic and pubic regions, the flexion of the femur will be materially diminished, and the adduction will have given place to abduction. This new abduction, with the consequent apparent lengthening, may become so great as to cause anxiety for the ultimate position of the



FIG. 37.



FIG. 39.

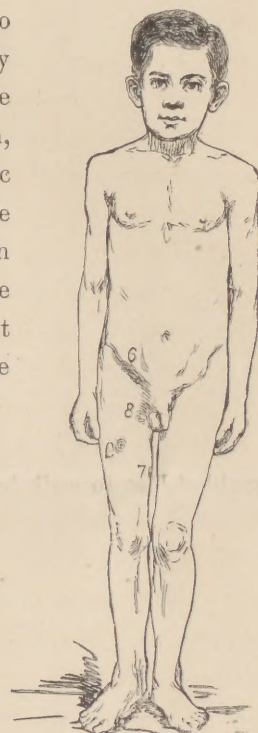


FIG. 38.

limb. This, however, disappears in time. As the patient gathers strength from the absence of pain and the return of sleep and appetite, locomotion without crutches will be resumed, and it will be seen that the fixation afforded by the splint is so well adapted to the requirements of the case as to obviate pain and promote the reparative processes and yet not so firm as to prevent the gradual disappearance of the abduction and the further diminution of the flexion in obedience to the unconscious efforts of the patient to put the limb in the most favorable position for locomotion. These views of the action of the hip-splint in the reduction of the deformity of acute hip-disease are at variance with much that has been written on this subject, but they are founded on clinical observation.

The changes from adduction to abduction and finally to a symmetrical position of the limb were observed in due order in this case. With the hip-joint thus protected from undue motion and also from



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pressure and concussion, the patient was enabled to pursue the ordinary occupations of a boy of his age while the reparative process gradually supplanted the ravages of the disease. Recovery, however, was not immediate. The abscess already referred to was followed at irregular intervals by other purulent collections which were incised or opened spontaneously until nine sinuses were established about the joint, all leading to carious bone. Five of these sinuses extended in a line down the outer side of the thigh from the trochanter to near the middle of the shaft of the femur, as seen in the cut, Fig. 37. The position and arrangement of these sinuses from one of which a fragment of cancellated bone was extended, the nature of the discharge, which was frequently offensive, and the character of the resulting cicatrices show that this was a case in which the shaft of the femur was to a considerable extent involved in the destructive osteitis. Although the progress of the case was generally towards recovery, there were stages in which the general condition of the patient was seriously affected. On such occasions the appetite failed, the tongue became coated, lassitude and irritability supervened and frequent ephemeræ indicated how profoundly the system was affected by the local disturbance. At such times and more especially throughout the early and more critical period of the disease, cod-liver oil and other roborants were freely prescribed. The fact that the patient was enabled to move about and to amuse himself in the open air and sunshine was believed to be especially useful in supporting his general health and thus indirectly promoting the recovery of the involved joint.

When the improvement in his general condition, the tolerance of motion in the joint and the disposition of the sinuses to close indicated the propriety of gradually relaxing the treatment, the splint was worn for some time with only a slight amount of traction, and finally the adhesive plasters were removed and the splint was worn for several months suspended merely by webbing passing over the shoulders, making, in fact, an ischiatic crutch. An elevated shoe on the foot of the unaffected side enabled him to walk briskly and at the same time to regain whatever motion could be got from a joint so thoroughly disorganized without exposing the new tissues to the violent concussion inseparable from ordinary locomotion.

The patient was under treatment two years and five months. His present condition, six months after treatment, is shown in the wood-cuts, Figs. 37 and 38. It is extremely favorable in view of the extensive destruction which had occurred in the joint, and the prolonged strain to which his system has been subjected by the disease. The limb is in good position, neither abducted nor adducted, and flexed at a slight angle, sufficient to allow him to sit comfortably, and yet not enough to interfere with locomotion. The motions of the knee are perfect. He walks with firmness, runs rapidly, and never uses a cane. The limp which accompanies rapid motion, and is slightly perceptible when he moves slowly, is partly the result of an inch of shortening and partly due to the absence of motion in the joint. That shortening comes not so much from the loss of bone at the upper extremity of the femur, as from a disparity in the size of the bony structures of the two legs, is illustrated in the outlines of the feet, Fig. 39, a disparity arising not only from disease and desuetude of the affected limb, but also, perhaps, from over-use of the unaffected limb. The remarkable locomotive power possessed by the patient in view of the size and importance of the joint affected, illustrates the ease with which motion is transferred from an impaired joint to the lumbar region of the spinal column and the hip-joint of the unaffected side. The auxiliary motion of these parts acquired thus in youth may



be expected to increase with the further growth of the patient. The position of the sinuses is shown in the figures. The cicatrices are firm, deeply depressed, and in some instances attached to the bone beneath. They are numbered in the order in which the sinuses made their appearance. The family history of this case shows no evidence of scrofula.

CASE II.—Was that of a girl, three years of age, whose mother died of consumption while the child was under my care. The family history showed that not only the mother, but also the maternal grandmother and three paternal uncles and aunts had died of phthisis pulmonalis. The disease was in the right hip, and had existed at least one year. Previous mechanical treatment had been by an immovable dressing of plaster of Paris, and afterwards by the use of a long hip-splint furnished

with a single perineal strap, and applied without adhesive plasters. This splint was constructed with a joint at the level of the knee, for the purpose of assisting locomotion, which was further facilitated by the use of Darrach's wheel crutch. When first seen the child presented the marked adduction and flexion of the thigh characteristic of the third stage, and had suffered for several weeks the intense pain which is usually the forerunner of abscesses communicating with the joint. The treatment adopted was identical with that of Case I. Under its use the pain abated, and the position of the limb improved,



FIG. 40.

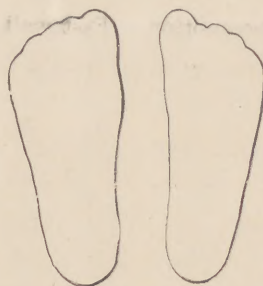


FIG. 42.

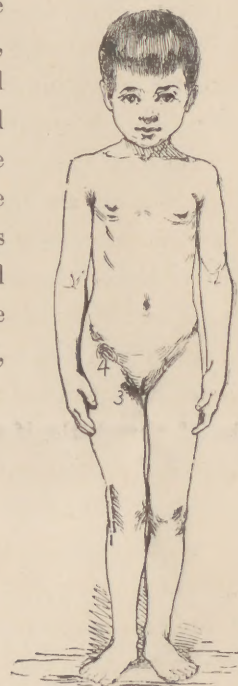


FIG. 41.

adduction giving place to abduction, and the flexion being materially diminished. But the abscess was not prevented. Five months after beginning treatment it was opened, and the sinus thus established on the outer surface of the thigh was followed, in the ensuing eighteen months, by five others, variously placed about the joint, which secreted an abundant and offensive pus, evidently from carious bone. The hip and upper part of the thigh were enormously swollen. During this period the treatment aimed at protecting the joint from motion and concussion and at fortifying the system so that Nature might check the destructive process, and substitute healthy or cicatricial tissue for that which was disintegrated. The treatment by tonics and roborants, viz., cod-liver oil, the more nutritive wines, chalybeates, &c., was apparently very much assisted by the use of a splint which allowed of locomotion in the erect position. With the exceptions to be mentioned, the patient, throughout



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the entire treatment, was out of doors every day, walking with the aid solely of the ischiatic support furnished by the perineal straps of the hip-splint. There were occasions when, for several days together, it was impossible for the child to take her customary exercise on account of pain. At such times febrile reaction and emaciation threatened a fatal termination of the case by exhaustion, and these periods coincided with the development of new abscesses and sinuses. The most serious and prolonged relapse occurred when, from the death of the patient's mother, it became necessary, for a time, to entrust the mechanical treatment to the child's friends. Notwithstanding these complications, the discharge slowly diminished, the sinuses gradually closed, some degree of motion was restored in the joint, and the re-establishment of the patient's health showed that recovery was assured. Mechanical treatment was continued for two years and seven months. During the first half of that time strong traction was used, but during the latter half of the time, when it became apparent that fixation by the splint was no longer required, the apparatus was applied more loosely, and for several months it was worn only in the daytime, as an ischiatic crutch, to protect the new tissues of the affected part from pressure in standing, and concussion in locomotion.

The patient's present condition, eight months after the final removal of the splint, is well shown in the cuts, Figs. 40 and 41. The cicatrices are numbered in the order in which the sinuses appeared. Nos. 4 and 5 are attached to bone. The other scars are deeply depressed and attached to the fasciæ. Her health is perfect and she is able to walk and run without assistance of any kind. The position of the femur is favorable both for walking and sitting, there being no abduction or adduction, but a moderate degree of flexion, and the shortening is only one-fourth of an inch, evidently due to a diminution in all the measurements of the limb. The outlines of the feet are seen in Fig. 42. When she walks slowly it is difficult to perceive any limping, although the motions of the joint itself are so slight as to be of very little, if any advantage in locomotion. Fast walking and running develop a slight limp, but not enough to prevent her from participating in all the pastimes of her time of life.

CASE III.—The family history of this case is remarkably free from evidences of scrofula. This boy, when first examined, was seven years old and had suffered from disease of the right hip for four years. The patient's father, a surgical instrument maker, possessed unusual skill in the adaptation of apparatus, and hence the mechanical part of the treatment had not been neglected. The boy was provided with a long hip-splint which would have been serviceable had it not been constructed of such light materials that even a moderate degree of traction at the joint was impossible. At every step the instrument allowed the weight of the body to rest on the diseased joint. The usual signs of the third stage of hip-disease were present. Several weeks of severe pain had indicated the formation of an abscess, already recognizable by swelling, redness and heat on the inner surface of the thigh. Mechanical treatment was resorted to as soon as practicable in the same manner as in case I., which produced some relief from pain and a general improvement in the position of the limb. Suppuration progressed, however, until the hip and the upper part of the thigh were greatly distended and the pus was evacuated by incision or spontaneously, when four sinuses were established in the positions and in the order indicated in the cuts, Figs. 43 and 44, which presented the tumid and everted edges characteristic of sinuses leading to dead bone. The severity and persistence of the symptoms, the number and positions of the sinuses, the long continuance and often offensive nature of the discharge, and the character of



the resulting cicatrices, of which Nos. 2 and 4 are attached to bone, clearly show that the case was one of destructive ostitis and disorganization of the joint. For many weeks the constitutional disturbance was severe. There was pallor with frequent hectic flushes and elevation of the temperature. Exacerbations of pain were partially relieved by the application of moist or dry heat. The diet was liberal and unrestricted in variety. Cod-liver oil and the ferruginous tonics were freely used. Notwithstanding the severity of the local symptoms and emaciation, the patient was usually able to be about the house, or out of doors, with the assistance of a pair of crutches, although it is probable that if he had not been previously dependent on them for a long time, he would have preferred to rely simply on the

ischiatric support furnished by the splint. The slightest attempt at motion in the joint was exquisitely painful, and the patient, soon after the beginning of treatment, perceived that locomotion and even movement of the body in bed were painless only when extension and counter-extension, with a reasonable degree of immobility, were enforced. At the end of a year it became evident from the diminution of the purulent discharge, the disposition of the sinuses to close, the tolerance of motion in the joint, and the improved condition of the patient that reparation was fairly established, and that fixation of the joint was no longer necessary. The splint was therefore removed and its



FIG. 43.



FIG. 45.

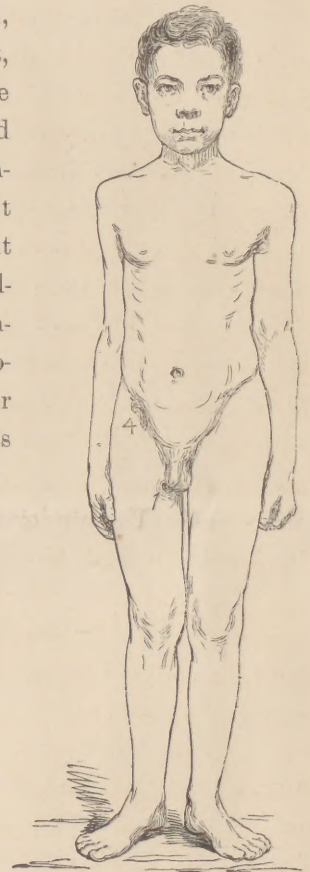


FIG. 44.

place was supplied by an instrument which, receiving the patient's weight on a single perineal strap, prevented his heel from reaching the ground and at the same time allowed of motion at the hip and knee. The crutches were then laid aside and this instrument was worn for three years, a longer time than was necessary, through excess of caution on the part of the patient's father, who assumed the subsequent care of the case.

The patient's present condition, eighteen months after all treatment was discontinued, is well depicted in Figs. 43 and 44. He is an active and robust school-boy, entering heartily into all the ordinary pursuits of a boy of his age. He takes long walks to and from school, and is a good skater.



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When walking slowly there is no perceptible defect in gait. The limp which is developed in rapid movement does not prevent him from walking and running with great speed. He never uses a cane. There is half an inch shortening. The position of the limb is good, there being a moderate degree of flexion, enough to facilitate sitting, but not sufficient to interfere with locomotion. There is neither abduction nor adduction of the femur. Motion at the joint is practically abolished, so that his remarkable power of locomotion is due to vicarious mobility of the lumbar region of the spine, and the unaffected hip-joint. The dimensions of the affected limb fall below those of its fellow, as is seen by the outlines of the feet (Fig. 45), and in the fact that there is a difference of one-fourth of an inch in the transverse measurements of the patellæ.

In reviewing these cases it is evident that the favorable results cannot be attributed to the superficial or trivial character of the lesions. They were cases in which the principal indications for exsection were present. In one of them exsection was advised by one whose name is prominent in the history of this operation. Dr. Cheever, in the midst of the performance of what has been termed "the majestic and sanguinary hip-joint operation" (*Medical and Surgical Reporter*, Philadelphia, June 18, 1864, p. 383), remarked: "In this, as in every similar case, when you get into the joint you are surprised to see the amount of disease which did not appear externally" (*Boston Medical and Surgical Journal*, Aug. 22, 1878, p. 234). It may be inferred, therefore, that in the cases related, in which the external signs of disease lacked no element of severity, the lesions were destructive, invading the hard and soft parts of the joint, and were sufficiently serious to justify and even demand a resort to the most heroic measures. Operative procedure, however, gave place to mechanical treatment in accordance with views of pathology which may be stated briefly in these terms: the affection is not malignant, and is not seated in a vital organ. Sir Benjamin Brodie exclaimed: "Why should the disease be dangerous? The hip-joint is not a vital organ" (*Clinical Lectures on Surgery*, 1846, pp. 279, 280). Its activity depends largely on the motion of the part, and the pressure and concussion incident to its use in locomotion. This view and a reliance on the reparative power of Nature determined the adoption of a plan of treatment described above, which secured relief from acute pain, and which was followed not only by recovery, but by a degree of usefulness in the affected limb far beyond the usual results of exsection.

It has been claimed that exsection relieves the patient at once from the pain of progressive hip disease in the third stage. Mr. Hancock, in his elaborate argument for exsection, draws the following picture of a case of hip disease: "Look at a patient wasted to a shadow, confined to his bed, not for months only, but for five years, in constant pain and in the last stage of exhaustion from long-continued discharge, his hands employed night and day incessantly maintaining a fixed position of the limb, and endeavoring to prevent the intense agony which occurs on the slightest movement. Often have I seen the poor hip-joint patient, when all others have slept, still wakeful and anxiously engrossed with the one and monotonous task of steadying the knee and preventing movement. Look again at this patient when the operation is performed; his position now is no longer one of constraint and torture, it is one of comparative comfort and rest. He no longer suffers the extreme pain, he no longer exists in dread of the slightest movement or jar, his countenance loses its drawn and anxious appearance, the hectic subsides, and whatever may be the ultimate result, we at all events have the satisfaction of feeling that by the operation we have alleviated a very vast amount of suffering; almost beyond the power of



endurance" (Lancet, June 1, 1872, p. 620). Great as is the relief thus depicted, it is not more marked than that which attends mechanical treatment in this stage of the disease. When fixation is secured, the anxious look gives way to an expression of repose, appetite and sleep return, and the reparative process begins.

As Mr. Hancock has suggested, the question of recovery after exsection is a momentous one. It is a serious question even when the operation is performed under the most favorable circumstances, such as surrounded the patients of Mr. Annandale. He was accustomed to operate at a very early stage of the disease. In one of his cases, a girl of sixteen years, the duration of the disease, previous to the operation, is recorded as three weeks. In the twenty-two cases which he reported in 1876, there were only five in which external sinuses existed. It will be seen from these facts that his cases were exceptionally favorable for operation, because they had not been weakened by exhausting discharges and long periods of suffering. Yet in these twenty-two cases death occurred in eight, at periods ranging from three to eighteen months after the operation (Edinburgh Medical Journal, February, 1876, p. 694).

As hip disease derives its desperate character (its *quasi* malignancy) from the difficulty experienced in securing rest, and not from the nature of the disease, which is sufficiently amenable to treatment when occurring in other parts of the body, it follows that the rate of mortality is diminished by providing efficient rest and avoiding the risks of operation.

Finally, in regard to the usefulness of the limb, the firm attitude shown in the figures,\* the facility in walking and running possessed by the patients, and their ability to endure fatigue, leave but little to be desired for the results of treatment.

\* The figures are from photographs in the library of the New York Hospital.



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